

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~In a communication system having Apparatus for~~ a sending station operable in a communication system for sending data upon a channel susceptible to distortion, the sending station having a first location from which the data is sent and at least a second location from which the data is sent, ~~an improvement of said~~ apparatus for space-time encoding the data at a selected coding rate, the selected coding rate a selected one of a first coding rate and at least a second coding rate, said apparatus comprising:

a space-time encoder coupled to receive indications of the selected coding rate and to receive the data formed of data symbols to be sent by the sending station, said space-time encoder ~~for encoding~~ each data symbol of the data symbols into a set of coded symbols that forms a code vector, and providing, at successive time periods, permutations of the coded symbols of each code vector to form separate encoded data sequences, a separate data sequence applied to each of the first location and the at least the second location, the separate data sequences having separate permutations of the data such that, at completion of the successive time periods, each coded symbol of the set is sent from each of the first and at least second locations.

2. (Original) The apparatus of claim 1 wherein the selected coding rate to which said space-time encoder is coupled to receive indications thereof comprises a fractional coding rate.

3. (Original) The apparatus of claim 1 wherein the sending station is operable to effectuate a first communication service at a first rate and to effectuate at least a second communication service at least at a second rate and wherein the indications of the selected

coding rate are of values responsive to which of the first and at least second communication services are to be effectuated.

4. (Currently Amended) The apparatus of claim 1 wherein the communication system comprises a radio communication system, wherein the channel is defined upon a radio link susceptible to fading, and wherein the first location and the at least the second location to which the ~~separate encoded data sequences~~ data symbols of the code vector formed by said space-time encoder are applied comprise a first antenna transducer and at least a second antenna transducer.

5. (Currently Amended) The apparatus of claim 1 wherein the coded symbols provided during each time period by said space-time encoder are provided in data sent by the sending station is sent in successive bursts, the data forming a first burst portion and at least a second burst portion, each of the first and at least second burst portions comprise of code symbols, and wherein the separate data sequences applied to the first and at least second locations exhibit separate burst portion permutations.

6. (Canceled)

7. (Currently Amended) The apparatus of claim 5 wherein ~~each of the burst portions formed by said space-time encoder comprise trellis encoded~~ said space-time encoder comprises a trellis encoder that forms coded symbols ~~burst portions encoded pursuant to a trellis-encoding technique.~~

8. (Currently Amended) The apparatus of claim 5 wherein said space-time encoder provides a set of the coded symbols during each burst, portion formed of the data is each burst represented by an index l , wherein the at least the second location from which the data is sent from the sending station further comprises n locations, and wherein the index l is defined by:
$$l = \text{mod}(l-1, n) + 1.$$

9. (Original) The apparatus of claim 8 wherein said space-time encoder forms an eight-state space-time code and wherein the data applied to said space-time encoder is encoded pursuant to the eight-state space-time code.

10. (Currently Amended) ~~In the communication system of claim 1~~ The apparatus of claim 1 further comprising a receiving station for receiving the data communicated upon the channel, subsequent to encoding thereof by said space-time encoder, ~~a further improvement of said apparatus~~ further for decoding the data once received at the receiving station, said apparatus comprising:

a space-time decoder coupled to receive indications of the data communicated upon the channel and received at the receiving station, said space-time decoder for decoding the indications to form a decoded representation of the data.

11. (Original) The apparatus of claim 10 wherein said space-time decoder performs cumulative metric decoding operations upon the indications of the data applied thereto.

12. (Original) The apparatus of claim 11 wherein the cumulative metric decoding operations performed upon the indications of the data utilized a permutation matrix.

13. (Currently Amended) The apparatus of claim 10 wherein ~~the separate data sequences~~ each code vector formed by said space-time encoder and communicated upon the channel to the receiving station include every permutation of ~~the data~~ each code vector.

14. (Currently Amended) The apparatus of claim 13 wherein distortion introduced upon the data during communication upon the channel during the successive time periods affects the ~~separate data sequences~~ coded symbols of each code vector in a symmetrical manner.

15. (Currently Amended) ~~In a~~ A method for communicating in a communication system having a sending station ~~for sending that sends~~ data formed of data symbols upon a channel susceptible to distortion, the sending station having a first location from which the data is sent and at least a second location from which the data is sent, ~~an improvement of a said~~ method for space-time encoding the data at a selected coding rate, the selected coding rate a selected one of a first coding rate and at least a second coding rate, said method comprising:

selecting the coding rate at which the data formed of the data symbols is to be encoded;

encoding each data symbol of the data symbols into a set of data symbols that forms a code vector ~~the data to form separate encoded data sequences~~; and

applying, at separate time periods, permutations of the coded symbols of each code vector to each of the first a separate data sequence to each of the first location and the at least the second location, ~~the separate data sequences having separate permutations of the data such that, at completion of the successive time periods, each coded symbol is sent from each of the first and at least second locations.~~

16. (Original) The method of claim 15 wherein the coding rate selected during said operation of selecting comprises a fractional coding rate.

17. (Currently Amended) The method of claim 15 wherein the communication system comprises a radio communication system, wherein the channel is defined upon a radio link susceptible to fading, wherein the first location comprises a first antenna transducer and at least a second antenna transducer, and wherein said operation of applying comprises applying a separate data ~~sequence~~ symbols of the code vector to each of the first antenna transducer and the at least the second antenna transducer.

18. (Currently Amended) The method of claim 15 wherein the data sent by the sending station is sent in successive bursts, ~~the data forming first burst portion and at least a second burst portion, and wherein the separate data sequence applied during said operation of~~

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~~applying the separate data sequence to each of the first and at least second locations;
respectively, comprises data sequences having separate permutations of the data.~~

19. (Canceled)

20. (Currently Amended) The method of claim 15 wherein ~~In the method of communicating in the communication system of claim 15, the communication system further for receiving receives the data communicated upon the channel at a receiving station, a further improvement for the receiving station of said method further comprises:~~

detecting at the receiving station the data communicated by the sending station upon the channel; and

decoding indications of the data detected during said operation of detecting to form a decoded representation of the data.